REMARKS

The non-Final Office Action mailed September 28, 2007, has been received and reviewed. Claims 1-28 are pending in the subject application. Each of claims 1-28 stand rejected. Claim 1 is amended herein. Reconsideration of the above-identified application in view of the following remarks is respectfully requested.

Rejections based on 35 U.S.C. § 103(a)

The basic requirements of a *prima facie* case of obviousness are summarized in MPEP §2143 through §2143.03. In order "[t]o establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine reference teachings. Second, there must be a reasonable expectation of success [in combining the references]. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991)." MPEP § 2143. Further, in establishing a *prima facie* case of obviousness, the initial burden is placed on the Examiner. "To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references. *Ex parte Clapp*, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985)." *Id.* *See also* MPEP § 706.02(j) and § 2142. Recently, the Supreme Court elaborated, at pages 13-14 of *KSR*, it will be necessary for [the Office] to look at interrelated

teachings of multiple [prior art references]; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by [one of] ordinary skill in the art, all in order to determine whether there was an apparent reason to combine the known elements in the fashion claimed by the [patent application]." *KSR v. Teleflex,* 127 S. Ct. 1727 (2007).

Claims 1, 14, and 22 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,069,894 to Holender et al. (hereinafter the "Holender reference") in view of U.S. Patent No. 5,600,638 to Bertin et al. (hereinafter the "Bertin reference"). Applicants submit that a *prima facie* case of obviousness for the rejection of claims 1, 14, and 22 under § 103(a) has not been established. As neither the Holender nor Bertin references, alone or in combination, teach or suggest all of the claimed features of independent claims 1, 14, and 22, Applicants traverse the rejection.

Independent claims 1, 14, and 22 relate to a method, computer storage media, and system for identifying optimal mapping of logical links to a physical topology of a network. Claims 1, 14, and 22 recite, among other things, obtaining one or more mapping options for mapping multiple logical links onto physical paths that are at least relatively disjoint; and obtaining a maximum time delay allowed between each pair of network nodes; and correlating the mapping options with the maximum time delay to identify optimal mapping of logical links to the physical topology of a network

By way of contrast, the Holender reference pertains to distributing physical network resources to logical networks that share physical network resources. *See Holender*, col. 5, lines 43-47. In Holender, "[p]hysical transmission resources are partitioned among logical networks." *See,* Abstract. "In some cases it turn[s] out to be better to support different services

by offering separate logical networks, and limiting the degree of integration to only partial rather than complete sharing of physical transmission and switching resources." *See id.* at col. 5, lines 52-56. Although the Holender reference discusses limiting the degree of integration to partial sharing of physical transmission and switching resources, the Holender reference does not teach or suggest obtaining mapping options for *mapping multiple logical links* between one or more pairs of network nodes onto *physical paths that are at least relatively disjoint*, as recited in amended claims 1, 14, and 22. Rather, in the Holender reference, physical transmission and switching resources are partially shared by separate logical networks. There is no discussion of *mapping multiple logical links* onto *physical paths* that are *at least relative disjoint.* Like the Holender reference, the Bertin reference also does not teach or suggest obtaining mapping options for mapping multiple logical links between one or more pairs of network nodes onto *physical paths that are at least relatively disjoint.*

In addition, with respect to claim 1, neither the Holender reference nor the Bertin reference teach or suggest obtaining mapping options for mapping multiple logical links between a first pair of network nodes and a second pair of network nodes, the first and second pair of network nodes sharing at least one node, onto physical paths that are at least relatively disjoint to enhance robustness of the network in an event of a resource failure. By way of contrast, the Holender reference recites that "[i]n some cases it turn[s] out to be better to support different services by offering separate logical networks, and limiting the degree of integration to only partial rather than complete sharing of physical transmission and switching resources." *See id.* at col. 5, lines 52-56. Although the Holender reference discusses limiting the degree of integration to partial sharing of physical transmission and switching resources, the Holender reference does not teach or suggest obtaining mapping options for *mapping multiple logical links* between one

or more pairs of network nodes onto *physical paths that are at least relatively disjoint* to *enhance robustness of the network in an event of a resource failure,* as recited in amended claims 1. Rather, in the Holender reference, physical transmission and switching resources are partially shared to support various services by using separate logical networks. There is no discussion of mapping multiple logical links onto physical paths that are at least relative disjoint to enhance robustness of the network in an event of a resource failure. Like the Holender reference, the Bertin reference also does not teach or suggest obtaining mapping options for mapping multiple logical links between one or more pairs of network nodes onto physical paths that are at least relatively disjoint to enhance robustness of the network in an event of a resource failure.

As such, it is respectfully submitted that the Holender and Bertin references fail to teach or suggest each limitation of claims 1, 14, and 22. Accordingly, withdrawal of the 35 U.S.C. §103 rejection of these claims is respectfully requested. Each of claims 1, 14, and 22 is believed to be in condition for allowance and such favorable action is requested. As claims 2-13, 15-21, and 23-28 depend, either directly or indirectly, from one of claims 1, 14, and 22, withdrawal of the 103 rejection of these claims is requested as well.

In addition, with respect to claim 1, the Bertin and Holender references also fail to teach or suggest obtaining a maximum time delay allowed between each pair of network nodes. The Bertin reference refers to "maximum end to end transit delay." Although the Bertin reference mentions maximum end to end transit delay, the Bertin reference does not teach or suggest obtaining a *maximum time delay allowed between each pair of network nodes*, wherein a first pair and second pair of network nodes share at least one node. Rather, the Bertin reference merely mentions an end to end transit delay. Such an end to end transit delay does not provide

for a maximum time delay allowed between a first pair of network nodes and a second pair of network nodes, the first and second pair of network nodes sharing at least one node.

The Holender reference fails to overcome the deficiencies of the Bertin reference. Like the Bertin reference, the Holender reference also does not teach or suggest obtaining a maximum time delay allowed between each pair of network nodes. The Holender reference states that "an objective function which is closely related to the operation and overall performance of the resource separated physical network is optimized with respect to at least one set of decision variables, given physical network parameters and the requirements of each logical network." Although the Holender reference mentions optimizing the resource separated physical network with respect to at least one set of decision variables, the Holender reference does not teach or suggest obtaining a *maximum time delay* allowed *between each pair of network nodes.* Rather, Holender discusses physical *network* parameters and the requirements of each logical *network* are utilized. As such, Holender does not discuss a maximum time delay allowed between each pair of network nodes.

As such, it is respectfully submitted that the Bertin and Holender references fail to teach or suggest each limitation of independent claim 1. Accordingly, withdrawal of the 35 U.S.C. §103 rejection of this claim is respectfully requested. Claim 1 is believed to be in condition for allowance and such favorable action is requested. As claims 2-13 depend directly or indirectly from claim 1, withdrawal of the 103 rejection of these claims is requested as well.

Claims 2-7, 13, 15-18 and 23-28 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Holender et al., U.S. Patent No. 6,069,894 in view of Bertin et al., U.S. Patent No. 5,600,638, as applied above to claim 1, and further in view of Tate et al., U.S. Patent No. 5,933,607 (hereinafter "the Tate reference). Applicants submit that a *prima facie* case of

obviousness for the rejection of claims 2-7, 13, 15-18, and 23-28 under § 103 (a) has not been established.

As neither the Holender nor Bertin references, alone or in combination, teach or suggest all of the claimed features of independent claims 1, 14, and 22, Applicants traverse the rejection. As discussed above, the Holender and Bertin references fail to teach or suggest all of the claimed features of the rejected independent claims.

In addition, the Tate reference also fails to teach or suggest all of the claimed features of the rejected independent claims. Although the Tate reference discusses a digital communication system used for information transfer, the Tate reference does not teach or suggest obtaining one or more mapping options for mapping multiple logical links between one or more pairs of network nodes onto physical paths that are at least relatively disjoint; and obtaining a maximum time delay allowed between each pair of network nodes. Rather, the Tate reference merely mentions topologies for which the invention is designed to support. As claims 2-7, 13, 15-18, and 23-28 depend, either directly or indirectly, from independent claims 1, 14, and 22, withdrawal of the 103(a) rejection of claims 2-7, 13, 15-18, and 23-28 is requested.

Further, the Tate reference also fails to teach or suggest all of the claimed features of dependent claims 2, 15, and 23. Dependent claims 2, 15, and 23 recite obtaining a relative time delay allowed between two or more physical paths. Many applications cannot tolerate a major change in delay in the event of a failure. *See*, Specification at ¶ [0029]. By contrast, the Tate reference mentions that "bit streams can emerge from a second system interface with a relative delay between separate streams." Although the Tate reference mentions relative delay between separate streams, the Tate reference does not disclose obtaining a relative time delay

allowed between two or more physical paths. Rather, the Tate reference merely mentions that a relative delay between separate streams can exist.

Like the Tate reference, the Bertin and Holender references also do not teach or suggest obtaining a relative time delay allowed between two or more physical paths. As such, it is respectfully submitted that the Tate, Bertin, and Holender references fail to teach or suggest each limitation of dependent claims 2, 15, and 23. Accordingly, withdrawal of the 35 U.S.C. §103 rejection of this claim is respectfully requested. Each of claims 2, 15, and 23 is believed to be in condition for allowance and such favorable action is requested. As claims 3-11, 16-21, and 24-28 depend directly or indirectly from one of claims 2, 15, and 23, withdrawal of the 103 rejection of these claims is requested as well.

Claims 8, 10, 19, and 21 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Holender et al., U.S. Patent No. 6,069,894 in view of Bertin et al., U.S. Patent No. 5,600,638 and Tate et al., U.S. Patent No. 5,933,607, as applied above to claims 7 and 18, and furthermore in view of Modiano et al., "Survivable Routing of Logical Topologies in WDM Networks", IEEE INFOCOM 2001, p. 348-357 (hereinafter "the Modiano reference). Applicants submit that a *prima facie* case of obviousness for the rejection of claims 8, 10, 19, and 21 under § 103 (a) has not been established.

As neither the Holender nor Bertin references, alone or in combination, teach or suggest all of the claimed features of independent claims 1 and 14, Applicants traverse the rejection. As discussed above, the Holender and Bertin references fail to teach or suggest all of the claimed features of the rejected independent claims.

In addition, the Modiano reference also fails to teach or suggest all of the claimed features of the rejected independent claims. Although the Modiano reference discusses "routing

logical links (lightpaths) in such a way that the logical topology remains connected in the event of single physical link failures (e.g., fiber cut)," the Modiano reference does not teach or suggest obtaining one or more mapping options for mapping multiple logical links between one or more pairs of network nodes onto physical paths that are at least relatively disjoint; and obtaining a maximum time delay allowed between each pair of network nodes. As claims 8, 10, 19, and 21 depend, either directly or indirectly, from independent claims 1 and 14, withdrawal of the 103(a) rejection of claims 8, 10, 19, and 21 is requested.

Claims 9 and 20 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Holender et al., U.S. Patent No. 6,069,894 in view of Bertin et al., U.S. Patent No. 5,600,638 and Tate et al., U.S. Patent No. 5,933,607, as applied above to claims 7 and 18, and furthermore in view of Nucci et al., "Design of Fault-Tolerant Logical Topologies in Wavelength-Routed Optical IP Networks", GLOBECOM 2001, p. 1-6 (hereinafter "the Nucci reference"). Applicants submit that a *prima facie* case of obviousness for the rejection of claims 9 and 20 under § 103 (a) has not been established.

As neither the Holender nor Bertin references, alone or in combination, teach or suggest all of the claimed features of independent claims 1 and 14, Applicants traverse the rejection. As discussed above, the Holender and Bertin references fail to teach or suggest all of the claimed features of the rejected independent claims.

In addition, the Nucci reference also fails to teach or suggest all of the claimed features of the rejected independent claims. Although the Nucci reference discusses logical topologies, the Nucci reference does not teach or suggest obtaining one or more mapping options for mapping multiple logical links between one or more pairs of network nodes onto physical paths that are at least relatively disjoint; and obtaining a maximum time delay allowed between

each pair of network nodes. Rather, the Nucci reference discuss re-routing IP datagrams to avoid faults. *See* Nucci, Abstract. As claims 9 and 20 depend, either directly or indirectly, from independent claims 1 and 14, withdrawal of the 103(a) rejection of claims 9 and 20 is requested.

Claim 11 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Holender et al., U.S. Patent No. 6,069,894 in view of Bertin et al., U.S. Patent No. 5,600,638 and Tate et al., U.S. Patent No. 5,933,607, as applied above to claims 7, and furthermore in view of Jurkerich et al., U.S. Patent No. 5,164,938 (hereinafter "the Jurkerich reference"). Applicants submit that a *prima facie* case of obviousness for the rejection of claim 11 under § 103 (a) has not been established.

As neither the Holender nor Bertin references, alone or in combination, teach or suggest all of the claimed features of independent claim 1, Applicants traverse the rejection. As discussed above, the Holender and Bertin references fail to teach or suggest all of the claimed features of the rejected independent claims.

In addition, the Jurkerich reference also fails to teach or suggest all of the claimed features of the rejected independent claims. Although the Jurkerich reference discusses transmitting information during calls, the Jurkerich reference does not teach or suggest obtaining one or more mapping options for mapping multiple logical links between one or more pairs of network nodes onto physical paths that are at least relatively disjoint; and obtaining a maximum time delay allowed between each pair of network nodes. *See* Jurkerich, Abstract. As claim 11 depends from independent claims 1, withdrawal of the 103(a) rejection of claim 11 is requested.

CONCLUSION

For at least the reasons stated above, claims 1-28 are now in condition for allowance. Applicants respectfully request withdrawal of the pending rejections and allowance of the claims. If any issues remain that would prevent issuance of this application, the Examiner is urged to contact the undersigned – 816-474-6550 or kfeimster@shb.com (such communication via email is herein expressly granted) – to resolve the same. It is believed that no fee is due, however, the Commissioner is hereby authorized to charge any amount required to Deposit Account No. 21-0765.

Respectfully submitted,

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